

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (withdrawn) A fluid switch giving three outputs from a three port, two position structure, actuated by an electrical supply which may be high or low to provide two of said outputs or switched, preferably rapidly, therebetween to provide the third output.
2. (withdrawn) A fluid switch according to Claim 1 wherein the fluid is pneumatic fluid.
3. (withdrawn) A fluid switch according to Claim 1 wherein the fluid is hydraulic fluid.
4. (withdrawn) A fluid switch according to Claim 1 wherein the fluid switch is a solenoid valve.
5. (withdrawn) A fluid switch according to Claim 1 wherein the fluid switch is a piezoelectric valve.
6. (withdrawn) A fluid switch according to Claim 1 wherein said structure comprises a switch member moveable by a control means to control flow of fluid through said ports.
7. (withdrawn) A fluid switch according to Claim 6 wherein the switch member is moveable by said control means to allow flow through one port and prevent flow

through a second port where the control means is in a first state and to prevent flow through the one port and allow flow through the second port where the control means is in a second state and to allow flow through a third port where said control means is alternated between said states.

8. (withdrawn) A fluid switch according to Claim 7 wherein the control means is rapidly alternated between said states.

9. (withdrawn) A fluid switch substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

10. (currently amended) A valve assembly having a fluid switch and a main valve for controlling fluid pressure in a working volume in three control states wherein the main valve has a control chamber, a moveable valve member, and three ports for fluid, namely a first port being for connection to a source of pressurised fluid, a second port being for connection to volume of low pressure fluid, and a third port for connection to the working volume, the valve member being moveable between a build position in which the second port is substantially closed and the first port is connected to the third port, a hold position in which flow of fluid through the first, second, and third ports is substantially prevented, and an exhaust position in which flow of fluid through the first port is substantially prevented whilst the second port is connected to the third port, flow of fluid through a the first port and a the second port being controlled by the fluid switch being provided with an electrical signal in a first state or a second state respectively, and flow of fluid through the third port being controlled by alternating said signal, ~~preferably rapidly,~~ between said first and second states, wherein the pressure supply to the fluid switch is drawn from the source of pressurized fluid ~~pressure supply to the main valve~~ thereby making the flow into the control chamber partly proportional to the supply

pressure, and the valve assembly is configured such that if the fluid pressure in the control chamber exceeds a predetermined percentage at the first port, the valve member adopts the exhaust position.

11. (original) A valve assembly according to Claim 10 wherein the fluid is pneumatic fluid.
12. (original) A valve assembly according to Claim 10 wherein the fluid is hydraulic fluid.
13. (previously presented) A valve assembly according to Claim 10 wherein the electrical switch means comprises a two-position solenoid operated valve member.
14. (previously presented) A valve assembly according to Claim 10 wherein the electrical switch comprises a two position piezoelectrically operated valve member.
15. (previously presented) A valve assembly according to Claim 12 wherein the valve assembly is an ABS valve.
16. (previously presented) A valve assembly according to Claim 10 wherein the valve assembly is an EBS valve.
17. (cancelled)

18. (currently amended) A valve assembly according to Claim 10 wherein the valve member moves to the build position ~~build state is set~~ when the electrical signal to the fluid switch is off for a continuous period.

19. (currently amended) A valve assembly according to Claim 10 wherein the valve member moves to the exhaust position ~~dump state is set~~ when the electrical signal to the fluid switch is on for a continuous period.

20. (currently amended) A valve assembly according to Claim 10 wherein the valve member moves to the hold position ~~hold state is set~~ when the electrical signal to the fluid switch is alternated, ~~preferably rapidly,~~ between on and off such that the pressure in the control chamber of the valve remains within an intermediate range.

21. (previously presented) A valve assembly according to Claim 10 wherein the valve is provided with ABS pressure control logic to control the fluid switch.

22. (cancelled)

23. (cancelled)

24. (currently amended) A valve assembly according to Claim 10 wherein the valve is an ABS valve and the valve has third port is a normally open hold port holding the pressure in a delivery to a brake operating means when the hold port is closed and the second port is a normally closed exhaust port for connecting the delivery to atmosphere or to another low pressure region when the exhaust port is open.

25. (previously presented) A valve assembly according to Claim 10 wherein the valve is an ABS valve and the valve has a normally open hold seat for holding the pressure in a delivery to a brake operating means when the hold seat is closed and a normally closed exhaust seat for connecting the delivery to atmosphere or other low pressure region when the exhaust seat is open.

26. (cancelled)

27. (cancelled)

28. (cancelled)

29. (currently amended) A valve assembly according to Claim ~~28~~ 10 wherein the ~~build pressure state is~~ valve member moves to the build position when a solenoid ~~is de-energised for a continuous period and the pressure in a control volume~~ the pressure in the control chamber is less than a predetermined percentage of the supply pressure, said predetermined pressure lying in a range of about 5% to about 50%.

30. (currently amended) A valve assembly according to Claim ~~28~~ 10 wherein the ~~exhaust pressure state is~~ valve member moves to the exhaust position when a solenoid ~~is energised continuously and the pressure in a control volume~~ the pressure in the control chamber is greater than a predetermined percentage of the supply pressure, said predetermined pressure lying in a range of about 70% to about 95%.

31. (currently amended) A valve assembly according to Claim ~~28~~ 10 wherein the hold pressure state is when a solenoid is switched on and off rapidly such that the

pressure delivered ~~from the solenoid~~ is in the control chamber is between two predetermined percentages of the supply pressure, said predetermined pressures being about 10% to about 90% of the supply pressure.

32. (original) A valve assembly having an electrically operated fluid switch control device having two seats and a switch member movable alternatively into sealing engagement with the seats to connect a control chamber of a main valve to a supply of fluid under pressure when the switch member is in a first position and in engagement with one seat and to a low pressure region when the switch member is in a second position and in engagement with the other seat, a body of the main valve having a first chamber in which a first piston is mounted for movement under the influence of fluid pressure in the control chamber, a second piston movable in a second chamber provided in the first piston under the influence of fluid pressure in a supply port, the second piston being movable into engagement with a third seat provided on the first piston to control passage of fluid from a delivery to an exhaust and being movable into engagement with a fourth seat provided on said body to control passage of fluid from a supply to the delivery and a control means to energise the fluid switch to position said switch member

- a. in said first position
- b. in said second position
- c. to alternate the position of the valve member between said first and second positions.

33. (original) A valve assembly according to Claim 32 wherein the internal dimensions of the valve are such that the valve enters each of the three control states depending upon the proportion of the supply pressure which is passed to the control volume.

34. (previously presented) A valve assembly according to claim 32 having an adjuster device for adjusting the volume of the control chamber.

35. (original) A valve assembly according to claim 34 wherein the adjuster device comprises an adjuster piston moveable in an adjuster chamber which is connected to the control chamber whereby the volume of the control chamber may be modified by adjustment of the adjuster position in the adjustment chamber.

36. (previously presented) A valve assembly according to claim 32 wherein a device is provided to accentuate the pressure across the second piston.

37. (original) A valve assembly according to claim 36 wherein the device comprises a shuttle or valve connected in functional association with the supply port to permit of a greater flow of fluid into the supply port than out of the supply port.

38. (original) A valve assembly according to claim 37 wherein the shuttle valve comprises a valve member wherein, when the flow is into the supply port, the valve member occupies a position in which fluid may flow around the outside of the valve member whilst when the flow is out of the supply port the valve member may occupy a position in which flow of fluid around the outside of the valve member is restricted or is prevented.

39. (cancelled)

40. (cancelled)

41. (previously presented) A valve assembly according to Claim 29, wherein the predetermined pressure is about 20%.

42. (previously presented) A valve assembly according to Claim 30, wherein the predetermined pressure is about 80%.

43. (currently amended) A valve assembly according to Claim 31, wherein the ~~pressure delivered from the solenoid~~ valve member moves to the hold position when the pressure in the control chamber is about 50% of the pressure at the first port.

Amendments to the Drawings:

No amendments are made to the Drawings herein.

REMARKS

By the foregoing Amendment, the Specification and Claims 10, 18-20, 24, 29-31 and 43 are amended and Claims 26-28 are cancelled. Entry of the Amendment, and favorable consideration thereof is earnestly requested. Claims 1-9 are withdrawn from consideration and Claims 17, 22, 23, 39 and 40 have been previously cancelled. Thus Claims 10-16, 18-21, 24, 25, 29-38 and 41-43 are pending and undergoing examination.

Claims 32-38 are allowed.

The Disclosure and Claim 10 are objected to for various informalities. The Disclosure and Claim 10 are amended to obviate these objections.

Claims 10-13, 15, 16, 18-21, 24-31 and 41-43 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Leiber (U.S. Patent No. 3,921,666) in view of Foster et al. (U.S. Patent No. 6,637,462), and Claim 14 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Leiber in view of Foster et al. and further in view of Fujiwara et al. (U.S. Patent No. 4,617,952). Applicant respectfully asks the Examiner to reconsider these rejections in view of the above Amendments and the below Remarks.

Claim 10 has been amended to more clearly distinguish the claimed invention from the cited prior art. More specifically, Claim 10, as amended, now requires that the valve assembly adopts the exhaust state if the fluid pressure in the control chamber exceeds a predetermined percentage of the pressure at the port to which the supply of pressurized fluid is connected. Applicant respectfully submits that no new matter has been added, and that support for the amendments made to Claim 10 can be found, among other places, in original Claim 30, and on

page 9, lines 4-7 of the present application as filed. This feature further distinguishes the present invention from the teachings of Leiber, and Applicant respectfully submits that claimed invention can now no longer be derived from a combination of Leiber and Foster et al.

In particular, it should be noted that in the valve assembly shown in Figure 10 of Leiber, the valve member adopts the exhaust position (in which port 63 is closed, and ports 64 and 65 are open) when the pressure in the control chamber 60 is sufficiently high that the force exerted on the piston 59 can overcome the biasing force of the spring 58 to move the closure body 53 into engagement with the valve seat 73, and to overcome the biasing force of the spring 57 so that the stop element 56 can push the closure body 54 out of engagement with the valve seat 61. Thus, the control chamber pressure required to move the valve member to the exhaust position depends exclusively on the biasing forces of springs 57 and 58, and *is not related in any way to the supply pressure*. Thus, it cannot be said that the valve assembly disclosed in Leiber is configured such that if the fluid pressure in the control chamber exceeds a predetermined percentage at the pressure of the supply port, the valve member moves to the exhaust position.

Moreover, Applicant respectfully submits that it would not have been obvious to one having ordinary skill in the art to modify Leiber, either when taken alone or when combined with the other cited prior art, to arrive at the above-discussed distinguishing features of the claimed invention.

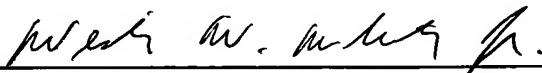
It is well settled that the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination or modification. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). In the present case, there is

nothing whatsoever disclosed in Leiber, or in either of the other two cited references, which would suggest to one having ordinary skill in the art that the valve assembly should, or even could, be configured such that if the fluid pressure in the control chamber exceeds a predetermined percentage at the first port, the valve member adopts the exhaust position. Applicant respectfully submits that the only suggestion for such a modification is found in the present application itself, the teachings of which, of course, can not be used to provide motivation for modifications necessary to render obvious the present invention, as claimed.

Minor clarifying amendments have been made to several of the remaining claims, in order to bring their wording into line with the amended wording of Claim 10. Additionally, several now superfluous claims have been deleted.

For the foregoing reasons, Applicant respectfully submits that all pending claims, namely Claims 10-16, 18-21, 24, 25, 29-38 and 41-43, are patentable over the references of record, and earnestly solicits allowance of the same.

Respectfully submitted,



Wesley W. Whitmyer, Jr., Reg. No. 33,558
Todd M. Oberdick, Reg. No. 44,268
Hyun Jong Park, Limited Recognition No. L0076
ST. ONGE STEWARD JOHNSTON & REENS LLC
986 Bedford Street
Stamford, Connecticut 06905-5619
(203) 324-6155
Attorneys for Applicant